

Abstract of the Disclosure

A method for forming via openings or contact holes with improved aspect ratios by using a deep UV photoresist is described. In the method, after a deep UV photoresist layer is deposited on top of a thick oxide layer, the deep UV photoresist layer is pre-treated by a curing process with UV radiation for a time period of at least 1 min, and preferably between about 1 min and about 10 min at a temperature of at least 100°C, and preferably at least 160°C. The curing process stabilizes the structure of the deep UV photoresist material and thus reduces the formation of fluorocarbon polymers by the carbon component in the photoresist material and the fluorine component in the etchant gas, and subsequently, reduces the coating of such fluorocarbon polymers at the bottom of the via openings which would otherwise stop the etching process during via or contact formation.